February 14, 2001

SCIENCE ADVISORY BOARD
EXECUTIVE COMMITTEE NATA SUBCOMMITTEE
Panel Information Conference Call Meeting
Convened in Ariel Rios Building Rm 6013
11:00AM - 1:00PM February 21, 2001

1. Opening (5 min.) — Dr. Mitchell Small, Panel Chair

A. Introductions
B. Overview

II. Agency setting the context (10 min.) — Dave Guinnup, OAQPS

A. Overview

NOTE: Presentation materials will be posted on the Web at a URL to be announced

B. Review materials and the Charge

III. Panel questions/concerns (whatever it takes) — Panelists

A. Points of clarification
B. General concerns about the project, if any
C. Specific concerns about specific Charge elements
D. Specific concerns about the process and schedule

IV. Summary (5 min.) — Dr. Small

A. What the Agency has agreed to do in preparation for the March meeting
B. What the Panelists have agreed to do in preparation for the March meeting

Charge to the Environmental Models Subcommittee of the SAB
for
Review of the NATA National-Scale Air Toxics Assessment for 1996

Background

The air toxics program was authorized under the 1970 Clean Air Act and reauthorized through the 1990 Amendments to the Clean Air Act (CAA). Since 1990, EPA and its regulatory partners, including State, local, and tribal governments, have made considerable progress in reducing emissions of air toxics through regulatory, voluntary, and other programs. To date, the overall air toxics program has focused on reducing emissions of air toxics from major stationary sources through the implementation of technology-based emissions standards. These actions, as well as actions to address mobile and stationary sources under other CAA programs, have achieved substantial reductions in air toxics emissions. We expect, however, that the emission reductions that will result from these actions may only be part of what is necessary to protect public health and the environment from air toxics. To progress toward the goal of protecting public health and the environment by reducing significant risks, we intend to work with our regulatory partners and other stakeholder groups, including industry, small businesses, and public interest groups, in making use of a combination of statutory authorities, regulatory activities, and voluntary initiatives. Our overall approach to reducing air toxics risks consists of four key components: 1) source-specific and sector-based standards (e.g., risk-based standards, under the Residual Risk Program[1]; area source standards, through the Integrated Urban Air Toxics Strategy)[2]; 2) national, regional, and community-based initiatives; 3) National Air Toxics Assessment (NATA) activities; and 4) education and outreach.

As a primary component of our national air toxics program, NATA activities include all data gathering, analyses, assessments, characterizations, and related research needed to support the other components of our air toxics program. More specifically, NATA activities include: expanding air toxics monitoring; improving and periodically updating emissions inventories; periodically conducting national- and local-scale air quality, multi-media and exposure modeling; characterizing risks associated with air toxics exposures; and continuing research on health and environmental effects of, and exposures to, both ambient and indoor sources of air toxics. Over time, these technical support activities will help us set program priorities, characterize risks, and track progress toward meeting our overall national air toxics program goals, as well as specific risk-based goals such as those of the Integrated Urban Air Toxics Strategy.

As part of the NATA activities, we have completed an initial national-scale assessment that demonstrates an approach to characterizing air toxics risks nationwide. This initial assessment provides preliminary information for characterizing, on a national scale, potential health risks associated with

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[1] The Residual Risk Report to Congress was reviewed by the Residual Risk Subcommittee of the SAB on August 3, 1998.

[2] The Integrated Urban Air Toxics Strategy is documented in 64 FR 38705

inhalation exposures to 32 air toxics identified as priority pollutants by our Integrated Urban Air Toxics Strategy. In addition, the assessment examines the inhalation exposure resulting from emissions of diesel particulate matter. The design of this assessment, in terms of the modeling tools and input data used, necessarily reflects limitations in the depth or comprehensiveness of the analysis in order to allow for the breadth of a national-scale assessment. As a consequence, the assessment cannot characterize local-scale impacts and risks, and it does not address exposures by ingestion or dermal contact, which may be important for some of these substances. Results of the assessment may, however, be used, to assist in identifying areas that have the potential for disproportionate cumulative inhalation risks. This assessment is also limited by the uncertainties inherent in the various types of data and methods currently available. Despite these limitations, this initial national-scale assessment represents an important first step in providing information to guide us, our regulatory partners, and stakeholders in developing and implementing various aspects of our national air toxics program.

Purpose and Goals

It is important to note that we will not use this initial national-scale assessment directly as a basis for regulating sources of air toxics. While our regulatory priorities will be informed by this and other assessments, we will develop risk-based regulations on the basis of more refined and source-specific data and assessments.

The primary goals of the initial national-scale assessment are to assist in:

- Identifying air toxics of greatest potential concern, in terms of contribution to population risk;
- Characterizing the relative contributions to air toxics concentrations and population exposures from different types of air toxics emission sources;
- Setting priorities for the collection of additional air toxics data (e.g., emission data, ambient monitoring data, data from personal exposure monitoring) for use in local-scale and multipathway modeling and assessments, and for future research to improve estimates of air toxics concentrations and their potential public health impacts;
- Establishing a baseline for tracking trends over time in modeled ambient concentrations of air toxics; and
- Establishing a baseline for measuring progress toward meeting goals for inhalation risk reduction from ambient air toxics.

Charge to the Subcommittee

While a number of the elements of this assessment have already undergone scientific peer review (see section 2.6.1), the entire assembly of these elements and application of the full assessment approach have not. Thus, we request that this Subcommittee review the approach, conclusions, and recommendations of this integrated national-scale air toxics assessment. Keeping in mind the stated

goals and preliminary nature of this assessment, we ask the Subcommittee to generally comment on the appropriateness of the overall approach, including the data, models, and methods used, and the ways in which these elements have been integrated. Also, we ask the Subcommittee to suggest ways to improve these approaches for subsequent national-scale assessments.

In providing your comments, we ask the Subcommittee to focus on the following specific questions:

1. Given the nature of the NTI and the methods by which it was developed and reviewed, have available emissions data been appropriately adapted for use in this assessment? Can you suggest improvements to EPA's application of the NTI for use in future initial national-scale assessments?

a) Can you suggest improvements to the treatment of compound classes (e.g., chromium and compounds), given the nature of the information available in the inventory?

b) Can you suggest improvements to the methods used to spatially distribute area and mobile source emissions?

c) Can you suggest improvements to the methods used to specify default point source emission characteristics in lieu of missing emissions data?

2. Is the approach taken for the geographic aggregation of ambient and exposure concentrations generated by the ASPEN and HAPEM4 models appropriate in light of the limitations of the models, the available emissions data, and the results of the comparisons of ambient predictions with ambient monitoring data?

3. Has available dose-response information (e.g., different sources of information, a different prioritization scheme) been appropriately used in this assessment? Can you suggest methods that could improve upon the use of available dose-response information?

4. What are the strengths and the weaknesses of the overall conceptual approach to risk characterization used in this assessment? Given the underlying science and the intended purposes of the assessment, can you suggest ways in which the risk characterization could be improved?

a) Is the method used to aggregate cancer risks appropriate? The aggregation of carcinogenic risk within two categories, based on weight-of-evidence classifications, is of particular interest.

b) Is the method used to aggregate non-cancer hazards appropriate? The summation of hazard quotients within target organs, the categorization of sums by ranges of uncertainty factors, and the inclusion of all target organs (as opposed to only the organs associated with the critical effect) are of particular interest.

5. Although EPA has concluded that available data are not sufficient to develop a reliable quantitative estimate of cancer unit risk for diesel emissions, it is clear that this pollutant class may be of significant concern in a number of urban settings. The risk characterization in this report includes a discussion of diesel particulate matter to help states and local areas frame the importance of this pollutant compared to the other air toxics. In the context of this assessment, is the discussion in this report regarding making risk comparisons among other air toxics appropriate? Can you provide any suggestions that would

improve upon this approach to comparing the toxic health effects of diesel particulate matter with other pollutants?

6. Given the limitations inherent in this preliminary assessment, have uncertainty and variability been appropriately characterized?

a) Can you suggest ways that the characterization of uncertainty and variability could be improved, made more transparent, or integrated more effectively into the risk characterization?

b) Can you suggest methods for quantifying individual as well as composite uncertainties associated with the emissions inventory, dispersion modeling, exposure modeling, dose-response assessment, quantitative risk estimates, and accumulation of risk across air toxics?

7. Have the results of the assessment been appropriately and clearly presented? Can you suggest alternative methods or formats that could improve the presentation and communication of these results?

8. The exposure methodology in NATA is being considered as one candidate for providing the basis for a national scale benefits analysis (as required in Section 812 of the CAA). Please comment on the strengths and weaknesses of this approach, recognizing the limitations outlined in the NATA report.

9. Do you have suggestions for research priorities that would improve such air toxics assessments in the future?

February 12, 2001

U.S. ENVIRONMENTAL PROTECTION AGENCY
SCIENCE ADVISORY BOARD
ENVIRONMENTAL MODELS SUBCOMMITTEE (EMS) NATIONAL-SCALE AIR TOXICS ASSESSMENT (NATA) REVIEW PANEL (NATA REVIEW PANEL) OF THE EXECUTIVE COMMITTEE
FY-2001

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